In the Claims

Please amend claims 1-18 and add new claims 23-26 as follows:

C\

1.   (currently amended) An echo/near-end-crosstalk cancellation system for a bi-directional data communications system comprising:

a first finite impulse response [[(FIR)]] filter;

a second [[FIR]] finite impulse response filter coupled to the first [[FIR]] finite impulse response filter;

a data partitioning means for partitioning a data signal comprising echo/near-end-crosstalk components such that a first portion of a partitioned data signal is processed by the first [[FIR]] finite impulse response filter to provide a first filter output value, and a second portion of the partitioned data signal comprised of bits having a data size greater than the bit width of the first FIR filter are is processed by the second [[FIR]] finite impulse response filter to provide a second filter output value; and

a combination means for subtracting the outputs of the first and second [[FIR]] finite impulse response filters from the data signal to provide echo/near-end-crosstalk [[(E/N)]] cancellation.

2.   (currently amended) The system according to Claim claim 1, further comprising a control means for adjusting the plurality of first and second filter output values.

3.   (currently amended) The system according to claim 1, wherein the first [[FIR]]finite impulse response filter and the second [[FIR]]finite impulse response filter are each implemented as a separate integrated circuit.

4.   (currently amended) The system according to claim 1, wherein the first [[FIR]]finite impulse response filter is comprised of a plurality of filter elements.

5.   (currently amended) The system according to claim 1, wherein the second [[FIR]]finite impulse response filter is comprised of a plurality of filter elements.

6.   (currently amended) The system according to claim 1, wherein the data partitioning means comprises a plurality of conductors for conducting the first portion of the data signal to the first [[FIR]]finite impulse response filter and the second portion of the data signal to the second [[FIR]]finite impulse response filter.

7.   (currently amended) The system according to claim 6, wherein the first portion of the partitioned data signal is comprised of the least significant bits [[(LSBs)]] of the data signal and the second portion is comprised of the most significant bits [[(MSBs)]] of the data signal.

2

1   8.   (currently amended) The system according to claim 6, wherein the first portion of
2   the partitioned data signal negates a first portion of an [[E/N]]echo/near-end-crosstalk signal
3   generated as a result of the transmission of the data signal.

1   9.   (currently amended) The system according to claim 8, wherein the second portion
2   of the partitioned data signal negates a second portion of an [[E/N]]echo/near-end-crosstalk
3   signal generated as a result of the transmission of the data signal, wherein the second portion of
4   the [[E/N]]echo/near-end-crosstalk signal is not included in the first portion.

1   10.   (currently amended) The system according to claim 1, wherein the first and
2   second [[FIR]]finite impulse response filters are adaptive type filters.

1   11.   (currently amended) The system according to claim 1, wherein the first and
2   second [[FIR]]finite impulse response filters are non-adaptive type filters.

1   12.   (currently amended) The system according to claim 1, wherein the first and
2   second [[FIR]]finite impulse response filters are digital filters.

1   13.   (currently amended) The system according to claim 1, wherein both the first and
2   second [[FIR]]finite impulse response filters are configured identically in direct form.

1   14.   (currently amended) The system according to claim 1, wherein both the first and
2   second [[FIR]]finite impulse response filters are configured identically in transpose form.

1   15.   (currently amended) The system according to claim 1, wherein the first and
2   second [[FIR]]finite impulse response filters are configured differently, with one being in direct
3   form and the other being in transpose form.

1   16.   (currently amended) The system according to claim 2, wherein the control means
2   for adjusting the plurality of first and second filter output values comprises a multi-tap delay line
3   including a plurality of taps, wherein at least one programmable delay line is interposed between
4   two of the plurality of taps.

1   17.   (currently amended) The system according to claim 2, wherein the control means
2   for adjusting each of the plurality of first and second filter output values comprises at least one
3   holding register in each [[FIR]]finite impulse response filter for implementing a unique one of a
4   plurality of adaptive delays.

1   18.   (currently amended) The system according to claim 1, wherein the first and
2   second [[FIR]]finite impulse response filters filter the data signal using either fixed or floating
3   point numbers.

1   19.   (original) A method for partitioning data words in an echo/near-end-crosstalk
2   cancellation circuit for a communications system, comprising the steps of:
3   determining a first bit resolution from a predetermined number of a plurality of
4   echo/near-end-crosstalk (E/N) signals having a lowest amplitude;

3

5   determining a second bit resolution by subtracting the first bit resolution from a bit

6   resolution of a single signal from a plurality of E/N signals having a highest amplitude; and

7   partitioning the plurality of E/N signals such that a first portion is processed by a first FIR

8   filter having a data path identical to the first bit resolution, and a second portion comprised of

9   bits having a data size exceeding the bit width of the first FIR filter is processed by a second FIR

10   filter having a data path identical to the second bit resolution.

1   20.   (original) The method according to claim 19, wherein the predetermined number

2   of signals comprises a majority of the plurality of E/N signals.

1   21.   (original) The method according to claim 20, wherein the predetermined number

2   of signals comprises three quarters of the plurality of E/N signals.

1   22.   (original) A method for partitioning a data signal, comprising the steps of:

2   determining from a plurality of echo/near-end-crosstalk (E/N) signals a maximum bit

3   resolution associated with a single signal having a highest amplitude;

4   selecting a first FIR filter and a second FIR filter each having a bit resolution equal to at

5   least half of the maximum bit resolution; and

6   partitioning the plurality of E/N signals such that a first portion is processed by the first

7   FIR filter, and a second portion comprised of bits having a data size greater than the bit width of

8   the first FIR filter are processed by the second FIR filter.

1   23.   (new) A method for partitioning data words in an echo/near-end-crosstalk

2   cancellation circuit for a bidirectional communications system, comprising the steps of:

3   determining a first bit resolution from a predetermined number of a plurality of

4   echo/near-end-crosstalk signals, said first bit resolution comprising a majority of lowest

5   amplitude echo/near-end crosstalk signals;

6   determining a second bit resolution by subtracting the first bit resolution from a bit

7   resolution of a single signal of said plurality of echo/near-end-crosstalk signals having a highest

8   amplitude; and

9   partitioning the plurality of echo/near-end-crosstalk signals such that a first portion is

10   processed by a first finite impulse response filter having a data path identical to the first bit

11   resolution, and a second portion is processed by a second finite impulse response filter having a

12   data path identical to the second bit resolution.

1   24.   (new) The method according to claim 23, wherein the predetermined number of

2   signals comprises a majority of the plurality of echo/near-end-crosstalk signals.

1   25.   (new) The method according to claim 24, wherein the predetermined number of

2   signals comprises three quarters of the plurality of echo/near-end-crosstalk signals.

1   26.   (new) A method for partitioning a data signal, comprising the steps of:

4

Appl. No. 09/477,910
Amdt. dated March 12, 2004
Reply to Office Action of November 18, 2003

C.1

2   determining from a plurality of echo/near-end-crosstalk signals a maximum bit resolution

3   associated with a single signal having a highest amplitude;

4   selecting a first finite impulse response filter and a second finite impulse response filter

5   each having a bit resolution equal to at least half of the maximum bit resolution; and

6   partitioning the plurality of echo/near-end-crosstalk signals such that a first portion is

7   processed by the first finite impulse response filter, and a second portion is processed by the

8   second finite impulse response filter.

5